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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/758,598 01/10/01 TSENG

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MMC2/1017

JASON Z. LIN
19597 VIA MONTE DRIVE
SARATOGA CA 95070

ART UNIT MELIYEN, P.	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/758,598

Applicant(s)

TSENG ET AL.

Examiner

Hoang V Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2001 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations “the first radiating element having a pattern which in combination of at least two patterns selected from the group of extended square-wave pattern, extended saw-tooth pattern and extended sinusoid pattern” (claim 16) and “the second radiating element being an extended bent conductor” (claim 18) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-4, 6, 7, 10-15 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Wass (US 6,069,592).

With respect to claim 1, Wass (Figure 3A) discloses a multi-frequency band antenna comprising a first radiating element 14 being shaped as an extended bent wire for functioning as an antenna element of a first frequency band, the first radiating element comprising a conductive material, a second radiating element 15 being shaped as an extended bent wire for functioning as an antenna element of a second frequency band, the second frequency band being different from

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the first frequency band, the second radiating element comprising a conductive material, and a feed radiating element (not numbered) having a first end 17 being used as a signal feed point for signals of the first and second frequency bands, and a second end being electrically connecting the first radiating element to the second radiating element and forming a top loaded structure.

With respect to claim 2, as applied to claim 1, Figure 3A of Wass shows that the feed radiating element being a metal conductor.

With respect to claim 3, as applied to claim 1, Figure 3A of Wass shows that the feed radiating element being formed by a metal conductor and a base 16 of a dielectric material.

With respect to claim 4, as applied to claim 3, Figure 3A of Wass shows that the metal conductor being placed on a top surface of the base 16.

With respect to claim 6, as applied to claim 1, Figure 3A of Wass shows that the first and second radiating elements being formed by two metal conductors and a base 16 of a dielectric material.

With respect to claim 7, as applied to claim 6, Figure 3A of Wass shows that the metal conductors being placed on a top surface of the base 16.

With respect to claims 10 and 11, as applied to claim 1, Figure 3A of Wass shows that the first and second radiating elements being coplanar and forming an angle in a range between 70° to 180° with the feed radiating element.

With respect to claim 12, as applied to claim 1, Figure 4 of Wass shows that the first and second radiating elements being placed on a curved surface.

With respect to claim 13, as applied to claim 1, Figure 3A of Wass shows that the first radiating element having an extended square-wave pattern.

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With respect to claim 14, as applied to claim 1, Figure 2C of Wass shows that the first radiating element can have an extended saw-tooth pattern.

With respect to claim 15, as applied to claim 1, Figure 2A of Wass shows that the first radiating element can have an extended sinusoid pattern.

With respect to claim 18, as applied to claim 1, Figure 3A of Wass shows that the second radiating element being an extended bent conductor.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 5, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wass in view of Asakura et al (US 5,870,066).

With respect to claims 5, 8 and 9, Wass discloses a multi-frequency band antenna comprising a first radiating element being shaped as an extended bent wire for functioning as an antenna element of a first frequency band, the first radiating element comprising a conductive material, a second radiating element being shaped as an extended bent wire for functioning as an antenna element of a second frequency band, the second frequency band being different from the first frequency band, the second radiating element comprising a conductive material, and a feed radiating element having a first end being used as a signal feed point for signals of the first and second frequency bands, and a second end being electrically connecting the first radiating

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element to the second radiating element and forming a top loaded structure, the first, second, and feed radiating elements being formed by metal conductors and a base of a dielectric material.

Wass does not teach that the conductors being placed in different interior layers of the base.

Asakura (Figures 1 and 2), however, teaches a multi-frequency band antenna comprising first, second, and feed radiating elements formed by a metal conductors being disposed in different interior layers of the base 11. It would have been obvious to one of ordinary skill in the art to provide the antenna of Wass with the metal conductor being placed on an interior layer of the base, as taught by Asakura, since such arrangement would protect the conductors from damage.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wass in view of Yanagisawa et al (US 6,130,651).

Wass discloses a multi-frequency band antenna comprising a first radiating element, a second radiating element, and a feed radiating element having a first end being used as a signal feed point for signals of the first and second frequency bands, and a second end being electrically connecting the first radiating element to the second radiating element and forming a top loaded structure. Wass fails to further teach that the first radiating element having a pattern which is in combination of at least two patterns selected from the group of extended square-wave pattern, extended saw-tooth pattern and extended sinusoid pattern. Yanagisawa (Figure 4), however, discloses a multiple band antenna comprising a first radiating element (40b,40d), a second radiating element 40f), and a feed radiating element having a first end 40a being used as a signal feed point for signals of the first and second frequency bands, and a second end 40g being electrically connecting the first radiating element to the second radiating element and forming a top loaded structure, wherein the first radiating element (40b,40d) having a pattern which is in

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combination of at least two patterns selected from the group of extended square-wave pattern, extended saw-tooth pattern and extended sinusoid pattern. It would have been an obvious matter of design choice to select the pattern of the first and second radiating elements in order to obtain desired radiating patterns.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wass in view of Hayes (US 6,100,848).

With respect to claim 17, Wass discloses a multi-frequency band antenna comprising a first radiating element being shaped as an extended bent wire for functioning as an antenna element of a first frequency band, the first radiating element comprising a conductive material, a second radiating element being shaped as an extended bent wire for functioning as an antenna element of a second frequency band, the second frequency band being different from the first frequency band, the second radiating element comprising a conductive material, and a feed radiating element having a first end being used as a signal feed point for signals of the first and second frequency bands, and a second end being electrically connecting the first radiating element to the second radiating element and forming a top loaded structure. Wass does not teach that the second radiating element being a straight conductor. Hayes (Figure 5) teaches a multiple band antenna comprising a first radiating element 18 and a second radiating element 36, wherein the first radiating element 18 having an extended square-wave pattern and the second radiating element 36 being a straight conductor. It would have been an obvious matter of design choice to select the pattern of the first and second radiating elements in order to obtain desired radiating patterns.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- A. Patent 6,166,694 discloses a printed dual band antenna.
- B. Patent 6,184,836 discloses a printed dual band antenna.
- C. Patent 6,198,442 discloses a multiple band antenna.
- D. Patent 6,028,567 discloses an antenna wherein the radiating element can have either an extended square-wave pattern, an extended saw-tooth pattern, or an extended sinusoid pattern.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoang V Nguyen whose telephone number is (703) 306-3444. The examiner can normally be reached on Mondays-Fridays from 9:00 a.m. to 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (703) 308-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

10. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Hoang V Nguyen
October 10, 2001